

IN THE SPECIFICATION:

Please replace the last paragraph of specification page 7 with the following replacement paragraph:

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Fig. 2A is a conformable fuel cell array that is contour-molded in accordance with one embodiment of the present invention;

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Please remove the first paragraph of specification page 8 with the following replacement paragraph:

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Fig. 2B is one embodiment of the fuel cartridge that contains the fuel supply for the devices of the present invention;

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Please replace the first two paragraphs of specification page 11 with the following replacement paragraph:

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In accordance with one embodiment of the present invention, a gel fuel 190 may be contained within a fuel cartridge 192 that is then adhered to the anode aspect of the fuel cell 100. The fuel gel substance emits fuel vapor that travels to the anode aspect by

way of a fuel vapor permeable layer 196, through the vapor gap 198, in the direction of the arrow 109. Thus, the fuel substance 190 is delivered directly from the gel, and water is pushed back across the membrane, which means that there is no need for water recirculation, or fuel and water mixing chambers, or the like. Further details of the operation of such a fuel cell are provided in previously-cited United States Patent Application No.: 10/688,433 by Juan J. Becerra *et al.* for FUEL SUBSTANCE AND ASSOCIATED CARTRIDGE FOR FUEL CELL. The type of fuel cell described in Fig. 1 can be used in the curved, contour-molded fuel cell array of the present invention illustrated in Fig. 2A. The conformable fuel cell array 200, shown in Fig. 2A, contains a catalyst-coated membrane electrolyte and anode and cathode diffusion layers, as described in the fuel cell of Fig. 1.

As used herein, when used to describe a fuel cell, a fuel cell array or a fuel cell system, “conformable” shall mean being fabricated in such a fashion as to generally conform to the contours of the desired application or being sufficiently pliable to allow the assembly to meet a variety of shapes or to change shape based on the form of the object to which it is attached. The formed current collectors, such as the anode current collector 206 (visible in Fig. 2A), and a cathode current collector (not shown) are provided on either side of the membrane electrode assembly and other components. These current collectors are preferably comprised of a material that can be deformed into a desired shape and then retain that shape while providing for the desired thinness of the assembly. The current collector should, in this embodiment, maintain sufficient rigidity to effectively render good compression over the active area following clamping at the edges of all unit cells by the molded frame. Suitable materials include, but are not limited to an open wire mesh, a stamped piece of stainless steel, or other conductive moldable material, which when applied using methods known to those skilled in the art, for example, with heat will take a particular shape and retain that shape. Typically, this includes the application and/or release of heat or pressure to the assembly.

Please replace the second paragraph of specification page 12 with the following replacement paragraph:

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A moldable material, such as plastic, is next introduced into the mold cavity to create a tight frame around the fuel cell. Once the frame is set, it seals the edges of the cells and of the overall array against leaks, which eliminates the need for additional gaskets. Importantly, the frame holds the components of the fuel cell in compression without the need for screws and nuts, which are thus completely eliminated. Thus, the resulting fuel cell has a contoured shape and achieves the compression needed for obtaining good fuel cell performance along the active surface of the fuel cell by combination of the clamping provided over all cell edges by the plastic frame and the rigidity of the pre-shaped current collectors (Fig. 2A). Preferably, the molded frame is designed to apply adequate compression to ensure good mechanical and electrical contact. For example, in accordance with one aspect of the invention, the compression is approximately 100 psi (or greater) along the active area of all unit cells. However, it should be understood that there is a wide range of compression values that could be achieved depending upon on the materials and architecture of the fuel cell system. As noted, further details of one type of insert molding technique are provided in commonly-owned United States Patent Application No. 10/650,424 of Fannon *et al.* for a METHOD OF MANUFACTURING A FUEL CELL ARRAY AND RELATED ARRAY, filed on August 28, 2003, which is incorporated herein by reference.

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Please replace the second full paragraph of specification page 13 with the following replacement paragraph:

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As noted, the frame 210 retains the fuel cell 200 in the desired curvilinear shape after the molding thereof. Although not limiting to the invention, the mold plates could be designed to produce a fuel cell that could be worn as a cuff on an arm or a leg portion, could be formed in the shape of a vest, or an insert for a shoe or glove or to be placed in/on other suitable accessories such as a belt. A fuel cell would then power devices being used by the individual wearing the fuel cell, or alternatively, the fuel cell could be formed or fastened in such a manner to conform to the shape of an application device. The fuel cell 200 of Fig. 2A will be supplied with an appropriate fuel delivery mechanism. Depending on the geometries involved, certain fuel delivery methods may be more amenable to use with certain types of shapes. Presently, one preferred method is that a layer of a gelled fuel substance is provided within the frame 210, under current collector 206 with the gel compartment following the curvature of the fuel cell array. In this embodiment one method is to add the gelled fuel into the gel compartment after the molding process, and to make such compartment removable. The gel emits fuel vapor directly to the anodes of all cells, reducing the possibility of leakage that could be presented when using a liquid fuel.

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Please replace the last paragraph of specification page 13-14 with the following replacement paragraph:

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The gelled fuel or a liquid fuel substance may be contained in a cartridge such as the cartridge 250 illustrated in Fig. 2B. Cartridge 250 is comprised of any material that is non-rupturable and is substantially non-reactive with fuel substances. It would also be desirable if the material were lightweight. The cartridge 250 has a body portion 252, which is substantially filled with fuel. A seal (not shown) would be removed when the user begins to operate the associated fuel cell. Then, liquid fuel or a

vaporous fuel travels through the tubing 254 in the direction of the arrow B to the anode portion of the fuel cell. Brackets ~~260 through 266~~ can be used for a strap or other mechanism that is used for holding the cartridge 250 steady on a holster, in a pocket or otherwise as worn by the user. Fuel transport from such a cartridge to the array, does not necessarily require any pumping. Liquid fuel from the cartridge could, for example, wick into a thin layer of foam placed behind the gel in the fuel compartment of the array, and maintain a uniform film of liquid fuel along the back surface of the gel. Fuel will be taken up by the gel from the foam, following significant utilization of methanol for the cell process.

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Please replace the first paragraph of specification page 15 with the following replacement paragraph:

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As noted above, the embodiment illustrated in Fig. 3 may be used with any fuel substance, or fuel delivery system, depending upon the particular application with which the fuel cell system is employed. The fuel delivery is similar to that described with respect to Figs. ~~2A and 2B~~2, in that fuel can be contained within a separate cartridge, or can be included, for example in gel form, in a compartment within the layered structure of the fuel cell from where it emits fuel in vapor form to the anode aspect of the fuel cell. Liquid fuel can be placed in a cartridge of the general type shown in figure 2B, coupled to the anode aspect of all cells in 300, feeding replacement fuel to the fuel cell. A hydrophilic foam or wick adjacent the gel can be used to draw liquid fuel from the external cartridge to the anode aspect of the fuel cell without the use of a pump.

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